AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1   1. (Currently amended) A computer-implemented method for selectively
2   auditing accesses to a relational database, comprising:
3   receiving a query for the relational database;
4   selectively auditing an access to the relational database,
5   wherein selectively auditing the access involves
6   automatically modifying the query prior to processing the query,
7   wherein processing the query causes an audit record to be created
8   and recorded only for rows in relational tables accessed by the query
9   and satisfy an auditing condition,
10   ~~wherein satisfying the auditing condition allows selective~~
11   ~~auditing of the query and not for other rows,~~
12   wherein the auditing condition specifies a condition based on
13   a value of a field in a row in the relational database, and
14   wherein satisfying the auditing condition allows selective
15   auditing of the query,
16   ~~wherein if the query includes a select statement, inserting a~~
17   ~~case statement into the select statement calling a function causing~~
18   ~~the audit record to be created and recorded if the auditing condition~~
19   ~~is satisfied,~~
20   ~~wherein inserting the case statement into the query further~~
21   ~~comprises:~~

22   ~~inserting the case statement into the query,~~

23   ~~allowing a query processor to allocate buffer for the~~

24 ~~query,~~

25   ~~removing the case statement from the query,~~

26   ~~allowing the query processor to generate a query plan~~

27 ~~for the query, and~~

28   ~~scheduling the case statement near the end of the~~

29 ~~query plan to ensure the case statement is evaluated only~~

30 ~~after other conditions of the query are satisfied, so the~~

31 ~~auditing record is created only for rows actually accessed by~~

32 ~~the query;~~

33 processing the modified query to produce a query result, wherein processing

34 the modified query includes,

35   creating the auditing records for rows in relational tables

36   accessed by the query and satisfying the auditing condition, and

37   recording the audit record in an audit record store; and

38 returning the query result.

1 2 (Canceled).

1 3. (Previously presented) The method of claim 1, further comprising

2 ensuring the case statement is evaluated near the end of the query processing so the

3 case statement is evaluated only after other conditions of the query are satisfied.

1 4 (Canceled).

1 5. (Original) The method of claim 1, wherein if the query modifies at least

2 one entry in the relational database, using a relational database system trigger to

3 create and record the audit record for the modification to the relational database.

1   6 (Canceled).

1   7. (Original) The method of claim 1, wherein the audit record includes:

2   a user name for a user making the query;

3   a time stamp specifying a time of the query; and

4   a text of the query.

1   8. (Original) The method of claim 1, wherein the auditing condition

2   includes a condition for a field within the relational database.

1   9. (Currently amended) A computer-readable storage medium storing

2   instructions to be executed by a computer causing the computer to perform a

3   method for selectively auditing accesses to a relational database, the method

4   comprising:

5   receiving a query for the relational database;

6   selectively auditing an access to the relational database,

7   wherein selectively auditing the access involves

8   automatically modifying the query prior to processing the query,

9   wherein processing the query causes an audit record to be created

10   and recorded only for rows in relational tables accessed by the query

11   and satisfying an auditing condition,

12   wherein satisfying the auditing condition allows selective

13   auditing of the query and not for other rows,

14   wherein the auditing condition specifies a condition based on

15   a value of a field in a row in the relational database, and

16   wherein satisfying the auditing condition allows selective

17   auditing of the query,

18   wherein if the query includes a select statement, inserting a

19   case statement into the select statement calling a function causing

20   the audit record to be created and recorded if the auditing condition

21 is satisfied,

22 wherein inserting the case statement into the query further

23 comprises:

24 inserting the case statement into the query,

25 allowing a query processor to allocate buffer

26 for the query,

27 removing the case statement from the query,

28 allowing the query processor to generate a

29 query plan for the query, and

30 scheduling the case statement near the end of

31 the query plan to ensure the case statement is

32 evaluated only after other conditions of the query are

33 satisfied, so the auditing record is created only for

34 rows actually accessed by the query;

35 processing the modified query to produce a query result, wherein processing

36 the modified query includes:

37 creating the auditing records for rows in relational tables

38 accessed by the query and satisfying the auditing condition, and

39 recording the audit record in an audit record store; and

40 returning the query result.

1 10 (Canceled).

1 11. (Previously presented) The computer-readable storage medium of claim

2 9, wherein the method further comprises ensuring the case statement is evaluated

3 near the end of the query processing so the case statement is evaluated only after

4 other conditions of the query are satisfied.

1   12. (Original) The computer-readable storage medium of claim 9, wherein

2   the method further comprises retrieving the auditing condition for a given table

3   from a data structure associated with the given table.

1   13. (Original) The computer-readable storage medium of claim 9, wherein if

2   the query modifies at least one entry in the relational database, the method further

3   comprises using a relational database system trigger to create and record the audit

4   record for the modification to the relational database.

1   14 (Canceled).

1   15. (Original) The computer-readable storage medium of claim 9, wherein

2   the audit record includes:

3   a user name for a user making the query;

4   a time stamp specifying a time of the query; and

5   a text of the query.

1   16. (Original) The computer-readable storage medium of claim 9, wherein

2   the auditing condition includes a condition for a field within the relational database.

1   17. (Currently amended) An apparatus for selectively auditing accesses to a

2   relational database, comprising:

3   a receiving mechanism configured to receive a query for the relational

4   database;

5   a selective auditing mechanism configured to selectively audit an access to

6   the relational database,

7   wherein selectively auditing the access involves

8   automatically modifying the query prior to processing the query,

9   wherein processing the query causes an audit record to be created

10   and recorded only for rows in relational tables accessed by the query

11   and satisfying an auditing condition,

12   ~~wherein satisfying the auditing condition allows selective~~

13   ~~auditing of the query and not for other rows,~~

14   wherein the auditing condition specifies a condition based on

15   a value of a field in a row in the relational database, and

16   wherein satisfying the auditing condition allows selective

17   auditing of the query,

18   ~~wherein if the query includes a select statement, inserting a~~

19   ~~case statement into the select statement calling a function causing~~

20   ~~the audit record to be created and recorded if the auditing condition~~

21   ~~is satisfied,~~

22   ~~wherein inserting the case statement into the query further~~

23   ~~comprises:~~

24   ~~inserting the case statement into the query,~~

25   ~~allowing a query processor to allocate buffer~~

26   ~~for the query,~~

27   ~~removing the case statement from the query,~~

28   ~~allowing the query processor to generate a~~

29   ~~query plan for the query,~~

30   ~~and scheduling the case statement near the~~

31   ~~end of the query plan to ensure the case statement is~~

32   ~~evaluated only after other conditions of the query are~~

33   ~~satisfied, so the auditing record is created only for~~

34   ~~rows actually accessed by the query;~~

35   a query processor configured to process the modified query to produce a

36   query result, wherein processing the modified query includes:

37   creating the auditing records for rows in relational tables

38   accessed by the query and satisfying the auditing condition, and

39   recording the audit record in an audit record store; and

40   a returning mechanism configured to return the query result.

1   18 (Canceled).

1   19. (Previously presented) The apparatus of claim 17, wherein the query
2   modification mechanism is configured to ensure the case statement is evaluated
3   near the end of the query processing so the case statement is evaluated only after
4   other conditions of the query are satisfied.

1   20. (Original) The apparatus of claim 17, wherein the query modification
2   mechanism is configured to retrieve the auditing condition for a given table from a
3   data structure associated with the given table.

1   21. (Original) The apparatus of claim 17, wherein if the query modifies at
2   least one entry in the relational database, the apparatus uses a relational database
3   system trigger to create and record the audit record for the modification to the
4   relational database.

1   22 (Canceled).

1   23. (Original) The apparatus of claim 17, wherein the audit record includes:
2   a user name for a user making the query;
3   a time stamp specifying a time of the query; and
4   a text of the query.

1   24. (Original) The apparatus of claim 17, wherein the auditing condition
2   includes a condition for a field within the relational database.

1   25. (Previously presented) The method of claim 1, further comprising
2   retrieving the auditing condition for a given table from a data structure associated
3   with the given table.

1	26. (Currently amended) A computer-implemented method for selectively
2	auditing accesses to a relational database, comprising:
3	receiving a database operation for the relational database;
4	selectively auditing an access to the relational database based on an
5	auditing condition, wherein the auditing condition specifies a condition based on a
6	value of a field in a row in the relational database;
7	processing the database operation to produce a database operation result,
8	wherein processing the database operation includes:
9	creating the auditing records for selected rows in the
10	relational database that are accessed by the database operation,
11	wherein the selected rows satisfy the auditing condition, and
12	recording the audit record in an audit record store; and
13	returning the database operation result;
14	wherein selectively auditing the access involves automatically modifying
15	the database operation prior to processing the database operation;
16	~~wherein processing the database operation causes an audit record to be~~
17	~~created and recorded only for rows in relational tables that are accessed by the~~
18	~~database operation and that satisfy an auditing condition;~~
19	wherein satisfying the auditing condition allows selective auditing of the
20	database operation and not for other rows;
21	wherein satisfying the auditing condition allows selective auditing of the
22	database operation;
23	~~wherein if the database operation includes a select statement, inserting a~~
24	~~case statement into the select statement that calls a function that causes the audit~~
25	~~record to be created and recorded if the auditing condition is satisfied; and~~
26	~~wherein if inserting the case statement into the database operation further~~
27	~~comprises inserting the case statement into the database operation:~~

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28   ~~allowing a database operation processor to allocate buffer~~

29   ~~for the database operation,~~

30   ~~removing the case statement from the database operation,~~

31   ~~allowing the database operation processor to generate a~~

32   ~~database operation plan for the database operation, and~~

33   ~~scheduling the case statement near the end of the database~~

34   ~~operation plan to ensure that the case statement is evaluated only~~

35   ~~after other conditions of the database operation are satisfied, so that~~

36   ~~the auditing record is created only for rows that are actually~~

37   ~~accessed by the database operation.~~

1   27 (Canceled).

1   28. (Previously presented) The method of claim 26, wherein the auditing

2 condition includes a condition for at least two fields within the relational database.

1   29. (Currently amended) A computer-readable storage medium storing

2 instructions that when executed by a computer cause the computer to perform a

3 method for selectively auditing accesses to a relational database, the method

4 comprising:

5   receiving a database operation for the relational database;

6   selectively auditing an access to the relational database based on an

7 auditing condition, wherein the auditing condition specifies a condition based on a

8 value of a field in a row in the relational database;

9   processing the database operation to produce a database operation result,

10 wherein processing the database operation includes:

11   creating the auditing records for selected rows in the

12   relational database that are accessed by the database operation,

13   wherein the selected rows satisfy the auditing condition, and

14   recording the audit record in an audit record store; and

15   returning the database operation result;

16   wherein selectively auditing the access involves automatically modifying

17 the database operation prior to processing the database operation;

18 ~~wherein processing the database operation causes an audit record to be~~

19 ~~created and recorded only for rows in relational tables that are accessed by the~~

20 ~~database operation and that satisfy an auditing condition;~~

21   wherein satisfying the auditing condition allows selective auditing of the

22 database operation and not for other rows;

23   wherein satisfying the auditing condition allows selective auditing of the

24 database operation;

25 ~~wherein if the database operation includes a select statement, inserting a~~

26 ~~case statement into the select statement that calls a function that causes the audit~~

27 ~~record to be created and recorded if the auditing condition is satisfied; and~~

28 ~~wherein if inserting the case statement into the database operation further~~

29 ~~comprises inserting the case statement into the database operation:~~

30   ~~allowing a database operation processor to allocate buffer~~

31   ~~for the database operation,~~

32   ~~removing the case statement from the database operation,~~

33   ~~allowing the database operation processor to generate a~~

34 ~~database operation plan for the database operation, and~~

35   ~~scheduling the case statement near the end of the database~~

36 ~~operation plan to ensure that the case statement is evaluated only~~

37 ~~after other conditions of the database operation are satisfied, so that~~

38 ~~the auditing record is created only for rows that are actually~~

39 ~~accessed by the database operation.~~

1   30 (Canceled).

1   31. (Previously presented) The computer-readable storage medium of

2   claim 29, wherein the auditing condition includes a condition for at least two

3   fields within the relational database.

1   32. (Currently amended) An apparatus for selectively auditing accesses to

2   a relational database, comprising:

3   a receiving mechanism configured to receive a database operation for the

4   relational database;

5   a selective auditing mechanism configured to selectively audit an access to

6   the relational database based on an auditing condition, wherein the auditing

7   condition specifies a condition based on a value of a field in a row in the relational

8   database;

9   a processing mechanism configured to process the database operation to

10   produce a database operation result;

11   a creating mechanism configured to create the auditing records for

12   selected rows in the relational database that are accessed by the database

13   operation, wherein the selected rows satisfy the auditing condition, and

14   a recording mechanism configured to record the audit record in an audit

15   record store; and

16   a returning mechanism configured to return the database operation result;

17   wherein selectively auditing the access involves automatically modifying

18   the database operation prior to processing the database operation;

19   ~~wherein processing the database operation causes an audit record to be~~

20   ~~created and recorded only for rows in relational tables that are accessed by the~~

21   ~~database operation and that satisfy an auditing condition;~~

12

22   wherein satisfying the auditing condition allows selective auditing of the

23   database operation and not for other rows;

24   wherein satisfying the auditing condition allows selective auditing of the

25   database operation;

26   ~~wherein if the database operation includes a select statement, inserting a~~

27 ~~case statement into the select statement that calls a function that causes the audit~~

28 ~~record to be created and recorded if the auditing condition is satisfied; and~~

29   ~~wherein if inserting the case statement into the database operation further~~

30 ~~comprises inserting the case statement into the database operation:~~

31   ~~allowing a database operation processor to allocate buffer~~

32   ~~for the database operation,~~

33   ~~removing the case statement from the database operation,~~

34   ~~allowing the database operation processor to generate a~~

35 ~~database operation plan for the database operation, and~~

36   ~~scheduling the case statement near the end of the database~~

37 ~~operation plan to ensure that the case statement is evaluated only~~

38 ~~after other conditions of the database operation are satisfied, so that~~

39 ~~the auditing record is created only for rows that are actually~~

40 ~~accessed by the database operation.~~

1   33 (Canceled).

1   34. (Previously presented) The apparatus of claim 32, wherein the auditing

2 condition includes a condition for at least two fields within the relational database.